for each region under consideration, determining from said attenuation data [to determine the] a value of a property of an unknown target material present in said region of the ensemble by substantially removing, by computer processing, contribution of underlying or overlying material to said value, the contribution of the underlying or overlying material, for said region under consideration, being determined from attenuation data from regions adjacent to said region under consideration, [in a manner by which said determination is not significantly influenced by material underlying or overlying said target material,]

for each region under consideration, comparing the determined value of the property of the target material in said region [regions] to a known value of said property of the given material,

registering locations of regions in the ensemble in which said comparison results in substantial agreement of said value of the property of said target material with the value of the property of said given material, [and in response thereto, in a visual display of the image of said ensemble, highlighting locations in the image based on said comparison agreements, thereby], and

indicating to an operator [viewing said display the locations of] possible presence of said given material based on said registered locations.

58. (Amended) The method of claim 57 wherein said determining step comprises selecting a target region [is determined] on the basis of the steepness of the gradient of [change of] the value of said property adjacent the target region as determined from said attenuation of the transmitted x-ray radiation through said regions.

59. (Amended) The method of claim [57] 58 or 70 further comprising imaging, on a visual display, said registered locations by highlighting [wherein in the visual display] edges corresponding to detected edges of the given material [are highlighted] along with adjacent areas having similar characteristics to fill in along the detected edges.

Cancel claim 60

61. (Amended) The method of claim [60] 58 or 70 wherein said computer [analysis] employs, effectively, a predetermined lookup table based on actual measurements performed on said given material under varying conditions.

63. (Amended) The method of claim [57] 59 wherein said display is a video monitor.

64. (Amended) The method of claim [57] 58 or 70 wherein said step of exposing comprises employing at least one fan beam of x-ray radiation generated by said x-ray source.

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65. (Amended)   The method of claim [57] 58 or 70

wherein said ensemble comprises an article of luggage or a

similar article capable of being transported by common carrier

and said step of exposing comprises employing at least one fan

beam of x-ray radiation emanating from [a fixed] said x-ray

source and moving the article on a conveyor past said at least

one fan beam.

66. (Amended)   The method of claim [64 or] 65 wherein

the transmitted fan beam is detected by at least one linear array

of detectors of said X-ray detector.

67. (Amended)   The method of claim 57 [or claim 65]

wherein said ensemble is exposed to x-ray radiation [energy] to

produce dual energy transmission data [information] related to

said target material and employing said dual energy data

[information in processing the detected signals for] in said step

of determining said values of the property of said target

material [without said determinations being significantly

influenced by material underlying or overlying said target

material].

68. (Amended) The method of claim 67 wherein said

processing includes [a comparison of] comparing said transmission

data [effects] through selected subareas of the ensemble to

transmission data [effects] of other subareas of the ensemble in

the vicinity of selected subareas.

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69. (Amended) A method for inspecting an article capable of being shipped by common carrier to detect a specific given material that may be present within said article in an ensemble in which different materials may overlie or underlie the given material, comprising

providing a stationary x-ray source adapted to expose a region of an ensemble of objects to x-ray radiation, and a stationary x-ray detector adapted to detect x-ray radiation transmitted through the ensemble of objects,

exposing regions of the ensemble to x-ray radiation by employing at least one fan beam of x-ray radiation from [a] said fixed source and moving the article on a conveyor past said at least one fan beam,

for each region, detecting the transmitted x-ray radiation [energy] and computer processing the [resulting] detected signal to generate data representing attenuation of the transmitted x-ray radiation

determining, from said attenuation data, [to determine the] a value of a property of an unknown target material present in [said] a region of the ensemble by substantially removing contribution of the underlying or overlying material to said value, the contribution of the underlying or overlying material is determined from regions adjacent to said target material, [in a manner by which said determination is not significantly influenced by material underlying or overlying said target material,]

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by computer analysis, comparing the determined value of the property of the target material in said regions to a known value of said property of the given material,

registering locations of regions in the ensemble in which said comparison results in substantial agreement of said value of the property of said target material with the value of the property of said given material,

and in response thereto, in a visual display of the image of said article, highlighting locations in the image based on said comparison agreements, thereby indicating to an operator viewing said display the locations of possible presence of said given material.

Please add the following new claims:

--70. The method of claim 57 wherein said step of removing the effect of underlying and overlying material comprises calculating values substantially related to the logarithm of the energy transmitted through the target material and through regions adjacent to the target material and then subtracting from the target material values part or all of the adjacent region values.

71. A system for detecting a specific given material that may be present in an ensemble of objects in which different materials may overlie or underlie the given material, said device comprising

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a stationary x-ray source adapted to expose a region of an ensemble of objects to x-ray radiation,

a stationary x-ray detector adapted to detect, over several regions, x-ray radiation transmitted through the ensemble of objects,

a computer adapted to receive data representing attenuation of the transmitted x-ray radiation and determine, for each region under consideration, from said attenuation data, a value of a property of an unknown target material present in said region of the ensemble by substantially removing contribution of underlying or overlying material to said value, the contribution of the underlying or overlying material, for said region under consideration, being determined from attenuation data from regions adjacent to said region under consideration,

said computer adapted to compare, for each region under consideration, the determined value of the property of the target material in said regions to a known value of said property of the given material and register locations of regions in the ensemble in which said comparison results in substantial agreement of said value of the property of said target material with the value of the property of said given material, and

said computer adapted to indicate to an operator possible presence of said given material based on said registered locations.

72. The system of claim 71 wherein said computer selects a target region on the basis of the steepness of the

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gradient of the value of said property adjacent the target region as determined from attenuation data of the transmitted x-ray radiation through said regions.

73. The system of claim 71 wherein said computer removes the effect of underlying and overlying material by calculating values substantially related to the logarithm of the energy transmitted through the target material and through regions adjacent to the target material and then subtracting from the target material values part or all of the adjacent region values.

74. The system of claim 72 or 73 further comprising a visual display adapted to image said given material of said ensemble by highlighting edges corresponding to detected edges of the given material along with adjacent areas having similar characteristics to fill in along the detected edges.

75. The system of claim 72 or 73 wherein said computer employs, effectively, a predetermined lookup table based on actual measurements performed on said given material under varying conditions.

76. The system of claim 75 wherein said varying conditions comprise variations in thickness of said given material.